

A MONOGRAPH OF THE FRESHWATER ENTOMOSTRACA OF  
NEW SOUTH WALES. PART iii. OSTRACODA.

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(Plates xxiv.-xxix.)

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*Introduction.*

The first description of Ostracods collected in New South Wales was published in 1855 by the Rev. R. L. King who described briefly thirteen new species and a new genus, *Newnhamia*. In 1886 G. S. Brady described eight species, four of which were new, from the Tweed River district; these descriptions, as well as King's, were based entirely on external features. In 1896 Sars described four new species and redescribed some of the earlier species. One new species was described by the present writer in 1919. The present paper comprises thirty-six species; two of these are recorded for the first time in Australia, one for the first time in New South Wales and seven are described as new.

The records of Ostracods present in the other States are very scanty. In Queensland, seven species were recorded by Sars in 1889; with one exception these occur also in New South Wales.

Brady described three species from South Australia in 1886 and two others are here recorded for the first time. Two species were described from Western Australia in 1896 by Sars.

No records can be found of the species occurring in Victoria or Tasmania.

The writer wishes to express her best thanks to Mr. T. Steel for the use of a collection of Ostracods from England and Scotland for comparison with the Australian forms and for shells of two species of *Candona* from the Tweed River. Thanks are also due to Miss M. Collins, B.Sc., for samples of dried mud from the Cobar district, one of which yielded a new species of *Cypridopsis*, and also to many friends who have collected material.

The drawings for this paper were all done with the aid of a camera lucida; the finished drawings were prepared by Miss D. Harrison.

The type specimens of the new species have been deposited in the Australian Museum, Sydney.

The following lists give the Ostracoda recorded from the different States.

*New South Wales.*

## CYPRIDIDAE.

Subfamily NOTODROMADINAE.—*Notodromus fuscatus* Brady, *Newnhamia fenestrata* King.

Subfamily ILYOCYPRINAE.—*Ilyocypris australiensis* Sars.

Subfamily CYPRIDOPSISINAE.—*Cypridopsis funebris* Brady, *Cypridopsis australis*, n.sp.

Subfamily CYPRIDINAE.—*Cypris bennelong* King, *C. reticulata* Zaddach, *C. clarkii* King, *C. scottii* King, *C. lateraria* King, *Cypris crinita*, n.sp., *Cyprinotus dentato-marginatus* (Baird), *Cy. fuscus* Henry, *Cy. incongruens* Ramdohr, *Cy. carinatus* (King), *Cy. leanus* Sars, *Cy. tenuis*, n.sp., *Stenocypris malcolmsonii* (Brady), *Cypretta minna* (King), *Cypretta globulus* Sars, *Cypretta turgida* Sars, *Cypretta viridis* Thomson, *Cypretta hirsuta*, n.sp.

Subfamily CYCLOCYPRIDINAE.—*Cypria pusilla* Sars, *Cyclocypris tenuissima*, n.sp.

Subfamily HERPETOCYPRIDINAE.—*Candonocypris candonoides* (King), *Herpetocypris laevissima*, n.sp., *Ilyodromus varrovillius* (King), *I. viridulus* Brady, *I. substriatus* Sars, *I. ellipticus* Sars, *I. obtusus* Sars, *I. stanleyanus* (King).

Subfamily CANDONINAE.—*Candona lutea* King, *Candonopsis tenuis* (Brady).

CYTHERIDAE.—*Limnocythere aspera*, n.sp.

*Queensland.*

## CYPRIDIDAE.

Subfamily CYPRIDINAE.—*Cyprinotus dentato-marginatus* (Baird), *Cyprinotus eingalensis* Brady, *Cypretta globulus* Sars, *Stenocypris malcolmsonii* (Brady).

Subfamily HERPETOCYPRIDINAE.—*Candonocypris candonoides* (King), *Ilyodromus viridulus* Brady.

Subfamily ILYOCYPRINAE.—*Ilyocypris australiensis* Sars.

*South Australia.*

## CYPRIDIDAE.

Subfamily CYPRIDINAE.—*Cypris tatei* Brady, *C. mytiloides* Brady, *C. bennelong* King, *Cypretta viridis* Thomson.

Subfamily HERPETOCYPRIDINAE.—*Ilyodromus stanleyanus* (King).

*Western Australia.*

## CYPRIDIDAE.

Subfamily CYPRIDINAE.—*Amphicypris oblongata* Sars, *Cyprinotus dahli* Sars.

*Classification.*

The Ostracoda are divided into four great tribes; three of these possess a biramose antenna variously developed and, so far as is known, are exclusively marine. The tribe *Podocopa* comprises all the freshwater forms and, in addition, a large number of marine forms; they are distinguished by the possession of a simple antenna which always bears apical claws.

*Key to families of Podocopa.*

A. Two pairs of legs; antenna without a flagellum.

B. Abdomen without a furca . . . . . *Darwinulidae*.  
(not known in Australia).

- BB. Abdomen with a furca. . . . . *Cyprididae*.  
 AA. Three pairs of legs; antenna with a flagellum. . . . . *Cytheridae*.

Family CYPRIDIDAE.

Shell usually thin, surface smooth, striated or pitted. Antennules composed of seven segments. Antennae composed of four to six segments, without a flagellum, with or without a brush of swimming setae. Two dissimilar pairs of legs. Caudal rami usually well developed, sometimes rudimentary. Seven sub-families are represented in New South Wales.

*Key to subfamilies of Cyprididae.*

- A. Antennae with natatory setae.  
 B. Natatory setae long, at least reaching the tips of the terminal claws.  
 C. Natatory setae reaching the tips of the claws or slightly beyond.  
   D. Second foot with three terminal setae of different lengths.  
     E. Two eyes present. . . . . *Notodromadinae*.  
     EE. One eye. . . . . *Ilyocyprinae*.  
   DD. Second foot with a beak-like end segment and a claw.  
     E. Furca rudimentary. . . . . *Cypridopsinae*.  
     EE. Furca normal. . . . . *Cypridinae*.  
 CC. Natatory setae exceeding the terminal claws by half their length. . . . . *Cyclocypridinae*.  
 BB. Natatory setae shortened, not nearly reaching the tips of the terminal claws. . . . . *Herpetocypridinae*.  
 AA. Antennae without natatory setae. . . . . *Candoninae*.

Subfamily NOTODROMADINAE

Shells usually short and high. Natatory setae of the antennae slightly exceeding the tips of the terminal claws. Second leg with three terminal setae of different lengths; one seta reflexed. Two eyes present.

Two genera are represented in New South Wales.

*Key to genera of Notodromadinae.*

- A. Second maxilla with two branchial filaments attached directly to the limb. . . . . *Newnhamia*.  
 AA. Second maxilla without branchial filaments. . . . . *Notodromus*.

Genus NOTODROMUS Lilljeborg, 1853.

Shell short and high, with a ventral flattening. Antennae composed of six segments. Furca with three seta-like claws, terminal seta absent. Both sexes present. Six species are known; one occurs in New South Wales.

NOTODROMUS FUSCATUS Brady.

This species was described by Brady in 1886 (p. 92, Plate x., figs. 4-6) but since merely the external appearance was described it is impossible to decide whether it is a true *Notodromus* or a member of the allied genus *Newnhamia*. Brady's description is as follows. "Shell seen laterally sub-triangular, height equal to three-fourths the length, extremities broadly rounded, anterior narrower of the two, dorsal margin excessively arched, highest a little behind the middle;



ventral nearly straight; seen from above the outline is ovate, scarcely twice as long as broad, tapered and acuminate in front, rounded off behind. Surface of the valves somewhat rough and furfureaceous, colour brownish with darker cloudings."

*Distribution*.—Brady's specimens were collected in the Condong District, Tweed River, N.S.W.

The late Mr. G. I. Playfair made drawings of specimens from Lismore, N.S.W., which seem to be identical with those from the Tweed.

#### Genus *NEWNHAMIA* King, 1855.

Shell granulate or tuberculate, appendages like those of *Notodromus* except that the mandibular palp bears a small branchial appendage, the filaments of which are directed upwards; the second pair of maxillae have two branchial filaments attached directly to the limb. Propagation sexual. Only two species are known, *N. patagonica* Vávra from Patagonia and *N. fenestrata* King from Australia.

*Newnhamia fenestrata* King. (Plate xxiv., figs. 1-10.)

King, Proc. Roy. Soc. Van Diemen's Land, 1855, p. 67.

*Female*. Shell seen laterally (fig. 1) short and high, the greatest height occurring about the middle; dorsal margin arched rather abruptly behind the eye, ventral straight for the great part of its length, becoming rounded off at each end; anterior and posterior margins slightly curved. Viewed dorsally (fig. 2), the outline is broadly ovate, tapering anteriorly with the greatest width, which exceeds two-thirds of the length, situated behind the middle. Ventral surface with a long flattened ventral plate (fig. 5). Valves unequal, the right slightly larger than the left. Surface thickly covered with tubercles, the margins bearing scattered hairs (figs. 3-4). Caudal rami (fig. 7) bearing three long seta-like claws, the two terminal ones almost equal in length, terminal seta absent. Colour dark grey to brown. Length, .79 mm., height, .61 mm.

*Male*. Smaller than the female, shell differently shaped, the highest point being behind the middle.

*Distribution*.—This species is common in the neighbourhood of Sydney; it is usually found in permanent ponds and in great numbers. N.S.W.: Sydney, Narrabeen, Lane Cove, Liverpool, Moss Vale, Holbrook.

Brady recorded it from New Zealand in 1906 and incorrectly stated that King's specimens were from Tasmania. Vávra also found it in the Bismarek Archipelago.

#### Subfamily ILYOCYPRINAE.

Shell strong, surface rough, with grooves and tubercles resembling the members of the family *Cytheridae*. Setae of antennae of varying lengths, usually extending at least to the tips of the terminal claws. Second leg with three setae on the terminal segment, one seta reflexed. One genus, *Ilyocypris*.

#### Genus *ILYOCYPRIS* Brady and Norman, 1889.

Shell compressed, surface pitted or tuberculated. Second pair of maxillae with a well developed branchial lamella. First leg only composed of five segments. Caudal rami with the dorsal seta attached almost in the middle. Propagation sexual. Seventeen species have been described, one of which occurs in New South Wales.



## ILYOCYPRIS AUSTRALIENSIS Sars.

Described in detail by Sars (1889) and fully figured (Plate ii., figs. 5-8; Pl. vi., figs. 1-14).

*Distribution.*—Sars' specimens were raised from dried mud collected at the Gracemere lagoon, near Rockhampton, Queensland. A few specimens were found in a collection from Holbrook. It has not hitherto been recorded from New South Wales.

## Subfamily CYPRIDOPSISINAE.

Natatory setae of the antennae reaching to the tips of the terminal claws. Second leg beak-shaped at the tip, with a terminal claw. Furca rudimentary, terminating in a long seta.

One genus represented in New South Wales.

## Genus CYPRIDOPSIS Brady, 1868.

Shell tumid. Antennae composed of five segments. Furca rudimentary, ending in a long seta and with a short seta on the dorsal edge.

Several species have been described from Australia and New Zealand as belonging to this genus, but in all except one case they were found to possess a normally developed furca.

*Cypridopsis funebris* Brady is a doubtful species. The first certain species of *Cypridopsis* in Australia is here recorded for the first time.

## CYPRIDOPSIS AUSTRALIS, n.sp. (Plate xxv., figs. 1-7.)

*Female.* Seen laterally (fig. 1) somewhat oval in outline; dorsal margin boldly arched, with a longer slope anteriorly than posteriorly; ventral margin distinctly sinuated just behind the middle; anterior and posterior margins evenly curved, the anterior lower than the posterior; greatest height occurring in front of the middle. Seen dorsally (fig. 2), elongated oval, slightly more pointed anteriorly than posteriorly; greatest width equal to half the length and occurring about the middle. Valves thick and strong, slightly unequal, the left being larger than the right. Surface irregularly marked by rounded pits (fig. 3) and bearing scattered hairs. Antennules with moderately long swimming setae. Antennae (fig. 4) with the setae of the second last segment exceeding the length of the strong terminal claws. First leg (fig. 5) with a strong terminal claw the distal half of which is denticulated. Second leg (fig. 6) bearing a straight terminal claw and a slender seta. Furca (fig. 7) rudimentary, with a small dorsal seta and a long terminal flagellum. Colour brown, becoming grey in alcohol. Length, .61 mm., height, .37 mm.

*Distribution.*—This species was bred from dried mud collected at Meryula station, near Cobar, N.S.W.

## CYPRIDOPSIS FUNEBRIS Brady.

This species was described by Brady in 1886 (p. 91, Plate viii., figs. 7-9). The description is only of the shape of the shell which appears to have been immature. Without examining the furca it is impossible to state whether this form is a true *Cypridopsis* and it is even more doubtful since Brady includes *Cypretta minna* King in this genus. The specimens were collected in the Condong district, Tweed River, N.S.W.

## Subfamily CYPRIDINAE.

Natatory setae of the antennae reaching at least to the tips of the terminal claws. Second leg with a beak-like end segment and claw. Furca well developed, usually armed with both claws and setae. Three genera are represented in New South Wales.

*Key to genera of Cypridinae.*

- A. Furca with two long terminal setae replacing the usual claws. . . . *Cyprretta*.  
 AA. Furca with claws and setae.  
   B. Dorsal seta of furca rudimentary or absent. . . . . *Stenocypris*.  
   BB. Dorsal seta well developed. . . . . *Cypris*.

## Genus CYPRETTA Vavra, 1895.

Shell short and tumid. Natatory setae of the antennae reaching beyond the terminal claws. Furca with the terminal claws replaced by setae, usual terminal seta sometimes absent. Ovary spirally wound. Males unknown. Five species occur in New South Wales.

*Key to species of Cyprretta.*

- A. Surface of the shell distinctly marked by closely set pits.  
   B. Furca with three long terminal setae. . . . . *globulus*.  
   BB. Furca with two long setae. . . . . *hirsuta*.  
 AA. Surface of the shell smooth or with a few scattered pits.  
   B. Right valve projecting over the left dorsally. . . . . *minna*.  
   BB. Valves even dorsally.  
     C. Width not exceeding three-quarters of the length. . . . . *viridis*.  
     CC. Width almost equal to the length. . . . . *turgida*.

## CYPRETTA GLOBULUS Sars.

*Cypridopsis globulus* Sars, 1889 (Pl. ii., figs. 9, 10; Pl. vii., figs. 1-11).

*Distribution*.—N.S.W.: Five Dock, Kensington, Kendall, Holbrook; Queensland.

The average length of this species is .75 mm. Some very much larger specimens were obtained from Five Dock; these attained a length of .90 mm., but were otherwise identical with the smaller forms.

## CYPRETTA HIRSUTA, n.sp. (Plate xxviii., figs. 1-5.)

*Female*. Seen laterally (fig. 1) irregularly oval in outline, the greatest height exceeding two-thirds of the length and occurring just behind the middle; dorsal margin evenly arched, ventral straight, anterior rounded, posterior lower than the anterior and almost angular. Seen dorsally (fig. 2) broadly oval in outline, greatest width slightly greater than the height and occurring about the middle; anterior end obtusely pointed, posterior rounded. Surface of the shell distinctly pitted and everywhere densely hairy. Right valve slightly overlapping the left, the ends marked with transverse lines (fig. 3); Muller (1898) regards these as septa which are extended between the valve lamellae for support; they appear to be characteristic of the genus and are especially distinct in this species. Mouth parts typical of the subfamily. Second pair of legs (fig. 4) provided with a hook and a slender recurved seta. Caudal rami long and slender, apical

seta usually long, second seta not attaining half the length of the first; both apical and dorsal minute setae present. Colour dark green with two lighter patches.

Length, .88 mm., height, .61 mm., width, .63 mm.

*Distribution*.—N.S.W., Koseiusko.

#### CYPRETTA TURGIDA Sars.

Described by Sars in 1894 (Plate iv., fig. 3a-d) as *Cypridopsis minna* and renamed *Cypridopsis turgida* in 1896.

*Female*. Shell, seen laterally, somewhat semicircular in shape, the greatest height occurring behind the middle and equal to two-thirds the length; dorsal margin boldly arched, sloping more steeply posteriorly than anteriorly; ventral margin straight, anterior and posterior ends rounded. Viewed dorsally, the anterior end is narrower than the posterior but the general shape is almost circular, the greatest width nearly equalling the length. Valves unequal, the right being slightly larger than the left and overlapping it anteriorly. Surface smooth, with a few small pits, hairs almost confined to the extremities. Caudal rami long and narrow, with terminal claw-like setae. Colour light yellowish-brown. Length, .90 mm.

*Distribution*.—N.S.W.: Sydney, Moss Vale, Berrima, Holbrook; New Zealand; China; Madagascar; Sumatra.

#### CYPRETTA VIRIDIS Thomson.

Described in 1878 (Plate vi., figs. A2a-9) as *Cypris viridis*.

*Female*. Seen laterally, rounded oval in form; dorsal margin arched, sloping steeply anteriorly; ventral margin straight; anterior margin lower than the posterior. Seen dorsally, oval in outline with the anterior end narrower than the posterior; width slightly greater than the height.

Valves unequal, the right being larger than the left. Surface smooth with a few scattered pits; densely covered with hairs. Caudal rami slender, with long setae. Colour dark green with irregular patches of a still darker shade. Length, .95 mm.

*Distribution*.—N.S.W.: Botany; South Australia; New Zealand.

#### CYPRETTA MINNA (King).

Described as *Cypris minna* in 1855 (p. 64); transferred to the genus *Cypridopsis* by Brady in 1886; described and figured by Sars in 1896 (Plate vii., fig. 5a-c) as *Cypridopsis minna*.

*Female*. Shell, seen laterally, rounded triangular in shape, the greatest height occurring about the middle and almost equal to the length; dorsal margin angular in the middle, sloping steeply to either side, ventral margin sinuated in the middle. Seen dorsally, somewhat egg-shaped, the greatest width not quite equalling the height. Valves unequal, the right overlapping the left anteriorly and dorsally. Surface slightly granular and hairy. Caudal rami very narrow, setae long. Length: Sars gives .92 mm. as the greatest length attained, but many specimens have been found measuring as much as 1.0 mm. and this is accordingly the largest Australian *Cypretta*. Colour, yellowish with large vivid green patches which become peacock blue in alcohol.

*Distribution*.—N.S.W.: Sydney, Varroville, Denham Court, Centennial Park,

Lane Cove, Condong district, Tweed River. Many specimens were bred out of dried mud collected at Meryula station, near Cobar.

Genus *STENOCYPRIS* Sars, 1889.

Shell narrow, the height not nearly attaining half the length. Natatory setae of the antennae not exceeding the tips of the terminal claws. First maxilla with a narrow cylindrical palp, last joint very small; masticatory lobes long and narrow. Caudal rami large, claws coarsely denticulate, dorsal seta absent or very small. Propagation sexual.

Nineteen species have been described, one of which occurs in New South Wales.

*STENOCYPRIS MALCOLMSONII* (Brady).

Syn. *Cypris cylindrica* Baird.

Described in 1886 (p. 297) as *Cypris malcolmsonii* and made the type of a new genus by Sars in 1889 (Pl. i., figs. 7, 8; Pl. v., figs. 1-4).

*Female.* Shell, seen laterally, elongated and narrow, height uniform, not nearly attaining half the length; dorsal margin straight for the greater part of its length, sloping abruptly in front and behind; ventral margin distinctly sinuated in front of the middle; anterior and posterior margins rounded. Seen dorsally, very narrow, with straight sides, anterior end more pointed than posterior. Valves almost equal, the left slightly longer than the right, inner duplicatures broad. Caudal rami strong, unequal, the right broader than the left and bearing a row of strong denticles, left ramus tapering slightly and bearing few small denticles; both claws coarsely denticulate, dorsal seta absent. Length, 1.7 mm. Colour pale green.

*Distribution.*—N.S.W.: Casino; Queensland; India; Ceylon.

Genus *CYPRIS* Muller.

Shell of various shapes. Antennae composed of five segments, natatory setae reaching to the tips of the terminal claws or beyond. Furca well developed, bearing claws and setae. Propagation sexual or parthenogenetic.

This large genus has been divided into a number of subgenera; two are represented in New South Wales.

*Key to subgenera of Cypris.*

- A. Inner edge of the right shell thickly tuberculate. . . . . *Cyprinotus*.  
 AA. Inner edge plain. . . . . *Cypris*.

Subgenus *CYPRIS*

First leg five-segmented. Inner edge of the right valve not tuberculate. Furca normal with two claws and two setae.

*Key to species of subgenus Cypris.*

- A. Length not attaining 3 mm.  
 B. Shell with a prominent anterior flange. . . . . *benneelong*.  
 BB. No such flange.  
 C. Surface of the shell sculptured.  
 D. Shell armed with tubercles. . . . . *lateraria*.



- DD. Shell without tubercles. . . . . *reticulata*.  
 CC. Surface of the shell smooth. . . . . *crinita*.  
 AA. Length exceeding 3 mm. . . . . *scottii*.

## CYPRIS BENNELONG King.

Syn. *Chlamydotheca australis* Brady.

Described very briefly by King in 1855 (p. 63) from an immature specimen. In 1894 (Pl. iv., figs. 1a-d) Sars described the same species from New Zealand and, on examining immature forms, decided that it was identical with the form described by King. Although the shell has the flange that is characteristic of the genus *Chlamydotheca*, the structure of the oral parts shows it to be a true *Cypris*, the natatory setae of the antennae extending well beyond the tips of the terminal claws.

*Female*. Shell, seen laterally, oval triangular, the greatest height exceeding half the length and occurring about the middle; dorsal margin arched, sloping more steeply anteriorly than posteriorly; ventral margin with two slight sinuses; anterior margin rounded, projecting into a flange at the lower corner, the prominence being caused by the left valve considerably overlapping the right. Seen dorsally the outline is oblong, with the greatest width equal to half the length, sides nearly straight; anterior end narrower than posterior, with a peculiar twist formed by the projection of the left valve. Surface smooth, margins of the valves hairy. Natatory setae of the antennae projecting far beyond the terminal claws. Caudal rami long and slender, apical claw equalling half the length of the ramus. Length, 1.4 mm. Colour brownish-green.

*Distribution*.—N.S.W.: Sydney Cove, Bourke Street, Corona; South Australia; New Zealand.

## CYPRIS LATERARIA King.

Described by King in 1855 (p. 65, Plate x., G.)

*Female*. Shell, seen laterally, much higher anteriorly than posteriorly, the greatest height slightly greater than half the length; anterior margin rounded; posterior obliquely truncated; dorsal arched above the eye, thence sloping in a straight line to the posterior margin; ventral margin deeply sinuated about the middle. Seen dorsally the shell appears oval, more pointed anteriorly than posteriorly, the greatest breadth equalling the height. Left valve larger than the right, overlapping it anteriorly and posteriorly; inner duplicatures narrow. Surface of the shell granular and densely hairy, bearing tubercles. Caudal rami slightly narrowed towards the tips, the outer claw not attaining half the length of the ramus. Colour yellowish-green. Length, 1.05 mm., height, .63 mm.

*Distribution*.—N.S.W.: Bourke Street, Sydney, Bringagee.

This species was reared from dried mud from Bringagee and from Corona.

## CYPRIS RETICULATA Zaddach.

Zaddach, Synopseos crustaceorum Prussicorum Prodromus, 1844. p. 34.

*Female*. Shell, seen laterally, with the greatest height occurring in front of the middle; dorsal margin arched especially in the anterior portion; ventral margin with a slight sinuation behind the middle, anterior and posterior margins rounded. Seen dorsally, broadly oval, the greatest width occurring about the middle, anterior end narrower than the posterior. Natatory setae of the antennae reaching slightly beyond the tips of the terminal claws. Surface of the shell sculptured with a fine reticulation which is more distinct in younger speci-

mens. Caudal rami bent near the apex, terminal claws denticulate, terminal and dorsal setae of equal length. Length, 1.3 mm. Colour yellowish to brown with dark markings.

*Distribution*.—N.S.W.: Holbrook; North America; Europe.

This is the first record of the occurrence of this species in Australia. The specimens examined agreed exactly with the descriptions of European forms, the only difference being a darker coloration.

CYPRIS CRINITA, n.sp. (Plate xxvi., figs. 1-8.)

*Female* (fig. 1). Shell, seen laterally, irregularly oval in outline, the greatest height exceeding half the length and occurring slightly in front of the middle; dorsal margin arched, sloping evenly at each end; ventral margin gently curved, sinuated in the middle; anterior and posterior margins evenly curved, the anterior lower than the posterior. Seen dorsally (fig. 3) a regular oval, except at each end, where there is a projection of the left valve; greatest width occurring about the middle and not quite equalling the height. Valves unequal, the left overlapping the right anteriorly, posteriorly and ventrally. Surface smooth, except for the usual small scattered pits, anterior and ventral margins bearing hairs, those of the posterior margin being unusually long. Antennules (fig. 4) with moderately long setae. Antennae (fig. 5) with the setae of the antepenultimate segment easily exceeding the tips of the terminal claws. First leg (fig. 6) with a powerful curved terminal claw bearing a row of denticles. Caudal rami (fig. 8) very long and exceptionally slender, terminal claw almost as long as the ramus, second claw only one-third as long as the terminal one, both claws denticulate and straight except for a pronounced hook at the end; terminal seta slightly shorter than the dorsal. Colour brilliant green and orange. Length, 2.2 mm., height, 1.2 mm., width, 1.1 mm.

*Male* (Fig. 2). Smaller than the female, the largest found only attaining a length of 1.9 mm. Shape somewhat different from that of the female, the height being greater in comparison with the length, the dorsal margin more pronouncedly arched and the ventral margin straighter.

*Distribution*.—N.S.W.: Holbrook.

CYPRIS SCOTTII King.

This species has not been recorded since King very briefly described it in 1855 (p. 63, Plate x., fig. C). It is evidently distinct from any other species recorded in Australia, since King describes it as being "nearly the tenth of an inch in length, of a transparent green colour marked with very minute reddish spots." The locality given is Denham Court.

CYPRIS STOBARTI King.

Described by King (1855, p. 62, Plate ix., Fig. B) from a single specimen which was not dissected. It is impossible to decide from the description whether this is a true *Cypris*; its outline suggests the subfamily *Herpetocypridinae*. King's description is as follows:—"The shell is oblong and slightly sinuated on the posterior dorsal margin. The valves are unequal, the left being the larger. They are polished and apparently of a yellowish colour."

*Distribution*.—Queensland: Moreton Bay.

CYPRIS CLARKII King.

This species also suggests the *Herpetocypridinae* but until further specimens are obtained it is impossible to decide whether it is a true *Cypris*. King's description (1855, p. 63, Plate x., E) only gives colour and form. "Shell oval, slightly reniform, the valves very convex, variegated with brown and a light reddish green in well defined notches of irregular but constant shape; the eye is yellow, shell punctured pilose."

*Distribution*.—N.S.W.: Sydney, Parramatta.

Subgenus CYPRINOTUS Brady, 1885.

Shells usually high, the greatest height being more than half the length; inner margin of the right valve thickly tuberculate. Brady described *Cyprinotus* as a new genus in 1885 (p. 301) with *C. cingalensis* as the type species, the inequality of the valves being taken as a generic character; in this species the right valve is gibbous and overlaps the left valve dorsally. In 1889 Sars described *C. dentato-marginatus* from Queensland; this species obviously belongs to the same genus as *C. cingalensis*, but lacks the dorsal projection of the right valve. Sars therefore based the genus on the tuberculate right valve and the fact that the propagation was sexual as contrasted with the genus *Cypris* which was supposed to be exclusively parthenogenetic. In 1903, Sharpe reduced *Cyprinotus* to a subgenus of *Cypris*, distinguished by the possession of tubercles on the right valve margin. He pointed out that the method of propagation is not always a generic character among the Ostracoda and that there are genuine species of *Cypris*, such as *C. testudinaria*, which propagate sexually. In this paper two species described by Sars under the genus *Cypris* have been transferred to the subgenus *Cyprinotus*; their males are unknown but there is no proof that they are exclusively parthenogenetic although they are known to propagate in this manner under certain circumstances.

*Key to species of the subgenus Cyprinotus.*

- A. Surface smooth and polished.
  - B. Right valve forming a dorsal projection.
    - C. Right valve considerably overlapping the left ventrally. . . . . *fuscus*.
    - CC. Valves even ventrally. . . . . *carinata*.
  - BB. No dorsal projection of the right valve.
    - C. Length exceeding 2 mm. . . . . *leana*.
    - CC. Length not attaining 2 mm.
      - D. Greatest height occurring in the middle. . . . . *dentato-marginatus*.
      - DD. Greatest height occurring posterior to the middle. *incongruens*.
- AA. Surface marked by a reticulate pattern. . . . . *tenuis*.

CYPRINOTUS FUSCUS Henry.

Proc. Roy. Soc. N.S.W., liii., 1919, p. 44, Plate ii., figs. 13, 14.

*Distribution*.—N.S.W.: Botany, Lismore.

CYPRINOTUS CARINATA King.

Described in 1855 (p. 61, Pl. ix., figs. C1-4) as *Cypris carinata*. The brief description and the figures are characteristic of this subgenus; the shape of the shell somewhat resembles *C. cingalensis*, although the dorsal projection is situated

farther back on the shell. King's description is as follows:—"Shell nearly elliptical, but higher on the back; the valves are unequal, the right being produced beyond the left at the posterior part of the dorsal edge giving the shell the appearance of a bell; the valves are polished, of a transparent greenish colour, with a darker quadrangular mark in the middle. Males darker and somewhat smaller."

*Distribution*.—Denham Court.

#### CYPRINOTUS LEANA Sars.

Described in 1896 (Plate vii., figs. 2, a-c) as *Cypris leana*.

*Female*. Shell, seen laterally, oval reniform, the greatest height occurring at the middle; dorsal margin greatly arched; ventral almost straight; anterior margin rounded, posterior higher than the anterior and obliquely truncated. Seen dorsally, oval in shape, the greatest width occurring behind the middle and equalling half the length; more pointed anteriorly than posteriorly. Valves slightly unequal, the right valve bearing a row of tubercles on the anterior margin and on the posterior portion of the ventral margin. Inner duplicatures narrow. Surface of the shell smooth and polished, the ends bearing small hairs. Caudal rami slender, tapering distally, apical claw equalling half the length of the ramus. Colour yellowish-brown. Length, 2.7 mm.

*Distribution*.—Hay, Yass.

#### CYPRINOTUS DENTATO-MARGINATUS (Baird).

Described in 1859 (p. 233) as *Cypris dentato-marginatus*. Fully described and figured in detail by Sars in 1889 (Pl. i., figs. 1-4, Pl. iii., figs. 1-11; Pl. iv., figs. 1-14).

*Distribution*.—N.S.W.: Botany, Centennial Park; Queensland; India; Ceylon.

#### CYPRINOTUS INCONGRUENS Ramdohr.

Syn. *C. sydneya* King, *C. ciliata* Thomson.

First described by Ramdohr in 1808 (p. 83); described by King in 1855 (p. 65) as *Cypris sydneya* and figured by Sars under that name in 1894 (Plate iv., figs. 2 a-c).

*Female*. Shell, seen laterally, reniform, higher posteriorly than anteriorly, the greatest height occurring behind the middle and exceeding half the length; dorsal margin curved, with a longer slope in front than behind; ventral margin almost straight. Seen dorsally, somewhat oval, much broader posteriorly than anteriorly, breadth not as great as the height. Left valve larger than the right, overlapping it at each end and ventrally; right valve tuberculated along the anterior margin and postero-ventrally. Surface smooth and polished with a few scattered pits. Caudal rami curved, apical claw not nearly half as long as the ramus. Colour yellow to orange. Length, 1.4 mm.

*Distribution*.—This is one of the few Ostracods with a world-wide distribution. It is common in the neighbourhood of Sydney and specimens have been collected at Bangalow on the North Coast of New South Wales. It has been recorded from New Zealand, North America, Europe and Asia.

#### CYPRINOTUS TENUIS, n.sp. (Plate xxvii., figs. 1-8.)

*Female* (fig. 1). Seen laterally, irregularly oval in outline, with the



greatest height occurring in front of the middle. Dorsal margin arched, sloping more abruptly anteriorly than posteriorly; ventral margin straight; anterior and posterior margins truncated, the anterior higher than the posterior. Seen dorsally (fig. 2) elongated oval, the greatest width occurring behind the middle, the sides curving to the posterior end but tapering to the more pointed anterior end. Valves unequal, the left being larger than the right; right valve bearing a row of denticles on its anterior margin and also on the postero-ventral corner; inner duplicatures narrow. Surface of the shell covered with an irregular reticulate pattern, with diamond-shaped meshes enclosing numerous small pits (fig. 3). Antennules (fig. 5) bearing long swimming setae, those of the antennae (fig. 4) reaching beyond the terminal claws. Second leg (fig. 7) bearing a short curved claw and a long seta. Caudal rami (fig. 8) comparatively short, terminal claw equal to three-quarters the length of the ramus, second claw slightly shorter, neither claw bearing denticles, apical seta short, only attaining half the length of the dorsal seta. Colour greyish brown, very transparent in alcohol. Length, 1.1 mm., height, .59 mm.

This species somewhat resembles *C. pellucida* Sharpe; an important difference is that in *C. pellucida* the right valve is larger than the left, whereas in the present form the exact opposite occurs.

*Distribution*.—N.S.W.: Kensington.

#### Subfamily CYCLOCYPRIDINAE.

Natatory setae of the antennae very long, exceeding the terminal claws by about half their length. Second leg with three setae of different length, one or more reflexed. Furca normal.

#### *Key to genera of Cyclocypridinae.*

- A. Terminal segment of the second leg small, with two short setae and a long reflexed seta. . . . . *Cypria*.  
 AA. Terminal segment of the second leg long, with one short claw and two reflexed setae. . . . . *Cyclocypris*.

#### Genus CYPRIA Zenker, 1854.

Shell short and high, strongly compressed. Second antenna of the male with two sense organs on the fourth segment. Last segment of the second leg short, bearing two short claw-like setae and one long reflexed seta. One species occurs in New South Wales.

#### CYPRIA PUSILLA Sars.

Described in 1896 (Plate vii., figs. 1a, b).

*Female*. Shell, seen laterally, somewhat semicircular in outline, the greatest height occurring about the middle; posterior margin rounded, higher than the anterior which is oblique; dorsal margin boldly arched; ventral almost straight. Seen dorsally, oblong, the anterior end slightly narrower than the posterior. Valves unequal, the right slightly overlapping the left anteriorly and postero-ventrally, and projecting much more dorsally. Surface of the shell smooth, margins densely hairy. Colour reddish-brown. Length, .58 mm.

*Distribution*.—N.S.W.: Rarely found in stagnant pools in the vicinity of Sydney. Sars' specimens were collected at Waterloo.

Genus *CYCLOCYPRIS* Brady and Norman, 1889.

Second antenna of the male without sense organs on the fourth segment. Terminal segment of the second leg long and narrow, bearing a short claw-like seta and two long reflexed setae. About fourteen species have been described.

*CYCLOCYPRIS TENUISSIMA*, n.sp. (Plate xxix., figs. 1-3.)

*Female* (fig. 2). Shell, seen laterally, oval in outline, dorsal margin evenly curved; ventral distinctly sinuated behind the middle; anterior margin curved, higher than the posterior; greatest height occurring in front of the middle and equal to slightly more than half the length. Seen dorsally, broadly oval, more pointed anteriorly than posteriorly, greatest width occurring behind the middle. Valves slightly unequal, the left overlapping the right anteriorly and posteriorly. Surface granular, though not definitely sculptured, free margins sparsely hairy. Natatory setae of the antennules and antennae very long. Second leg with a moderately long end-segment bearing a short claw-like seta and two reflexed setae, one of which is nearly twice as long as the other. Caudal rami (fig. 3) long and slender, curved, end-claws long. Dorsal seta almost equal to the apical seta in length. Colour brown. Length, .52 mm., height, .28 mm.

*Male* (fig. 1). Slightly smaller than the female and higher in proportion to its length; dorsal margin more boldly arched; ventral almost straight. Length, .50 mm., height, .30 mm.

*Distribution*.—N.S.W.: Orange.

## Subfamily HERPETOCYPRIDINAE.

Natatory setae of the antennae shortened. Second leg terminating in a beak-shaped end-segment armed with a short claw. Incapable of swimming in the adult state. Three genera are represented in New South Wales.

*Key to genera of Herpetocypridinae.*

A. Furca normal.

B. Left valve larger than the right. . . . . *Herpetocypris*.

BB. Right valve larger than the left. . . . . *Candonocypris*.

AA. Furca ending in three claws. . . . . *Ilyodromus*.

Genus *CANDONOCYPRIS* Sars, 1894.

Shell oblong, height not attaining half the length. Right valve overlapping the left. Natatory setae of the antennae not attaining the tips of the terminal claws. First pair of maxillae with short masticatory lobes, palp large, bearing a few claw-like spines. Propagation usually parthenogenetic.

One species occurs in New South Wales.

*CANDONOCYPRIS CANDONOIDES* (King).

Described by King in 1855 (p. 66) as *Cypris candonoides*. Redescribed and figured in detail by Sars in 1889 (p. 35, Plate ii., figs. 1-2; Pl. v., figs. 5-7) as *Herpetocypris stanleyana*. Transferred to a new genus *Candonocypris* by Sars in 1894.

*Distribution*.—N.S.W.: Sydney, Varroville, Buckanbe; Queensland; New Zealand; South Africa.

Genus HERPETOCYPRIS Brady and Norman, 1889.

Shell elongated. Natatory setae of the antennae not attaining the tips of the terminal claws. Second segment of the first leg with one seta on the anterior margin. Maxillae as in *Cypris*. One species present in New South Wales.

HERPETOCYPRIS LAEVISSIMA, n.sp. (Plate xxviii., figs. 6, 7.)

*Female* (fig. 6). Seen laterally, oval in outline, with the greatest height, which slightly exceeds half the length, situated behind the middle. Dorsal margin arched, sloping more abruptly posteriorly than anteriorly; ventral margin distinctly sinuated about the middle; anterior and posterior margins rounded, the anterior being lower than the posterior. Seen dorsally, regularly oval in outline, with the greatest width occurring about the middle, anterior end more pointed than the posterior. Valves equal, margins sparsely hairy. Surface of the shell smooth, except for a few scattered and very tiny pits. Antennules with moderately long setae. Antennae with very short setae which do not reach beyond the base of the terminal claws. Second leg ending in a curved claw and bearing a long seta. Caudal ramus (fig. 7) long and slender, second claw attaining two-thirds the length of the apical claw, both minutely denticulated; setae of equal length; dorsal edge of the ramus bearing a row of minute denticles. Colour greenish-yellow. Length, 1.4 mm., height, .72 mm.

Male unknown.

*Distribution*.—N.S.W.: Parramatta.

Genus ILYODROMUS Sars, 1898.

Shells highly compressed. Valves equal or the left valve larger than the right, inner duplicatures very broad. Natatory setae of the antennae poorly developed. Caudal rami armed with three claws increasing in length distally.

Males unknown.

Six species occur in New South Wales.

*Key to species of Ilyodromus.*

- A. Surface marked by distinct longitudinal lines.
- B. Ventral margins of the valves almost straight. . . . . *stanleyanus*.
- BB. Ventral margins deeply sinuated.
- C. Greatest height not nearly equal to half length. Length exceeding 1.5 mm. . . . . *varrovillius*.
- CC. Greatest height almost equal to half the length. Length less than 1.5 mm. . . . . *obtusus*.
- AA. Surface smooth or delicately striated.
- B. Surface quite smooth. . . . . *viridulus*.
- BB. Surface striated.
- C. Dorsal margin forming an angle above the eye. . . . . *substriatus*.
- CC. Dorsal margin evenly curved. . . . . *ellipticus*.

ILYODROMUS STANLEYANUS (King).

Described by King in 1855 (p. 66) as *Candona stanleyana*. In 1886 (p. 89) Brady described *Cypris stanleyana* from an immature specimen; it is doubtful whether this is identical with King's species. Sars figured this species in 1894 (Plate v., figs. 3a-e) and transferred it to the genus *Ilyodromus*.

*Female*. Shell, seen laterally, elongated reniform in shape; dorsal margin

straight in the middle, sloping at each end, ventral slightly sinuated in the middle; anterior and posterior margins rounded and equal in height. Seen dorsally, very compressed, more pointed anteriorly than posteriorly. Left valve very slightly larger than the right, overlapping at each end and ventrally; inner duplicatures very broad. Surface of the shell sculptured with elevated longitudinal lines, with small scattered pits between them. Caudal rami strongly built, of uniform breadth; claws well developed. Colour dark green. Length, 1.6 mm.

*Distribution*.—N.S.W.: Coogee, Maroubra; South Australia; New Zealand.

#### ILYODROMUS VARROVILLIUS (King).

*Cypris varrovillius* King, 1855 (p. 41); *Ilyodromus varrovillius* Sars, 1894 (p. 41, Plate vi, figs. 1a-c).

*Female*. Shell, seen laterally, narrow and somewhat oblong in shape; dorsal margin straight for the greater part of its length, sloping anteriorly and posteriorly; ventral margin sinuated in front of the middle; posterior rounded, lower than the rounded anterior margin. Seen dorsally, moderately compressed, oval in outline. Valves and surface of the shell as in the preceding species. Caudal rami coarsely built, expanded at the tips, claws well developed. Colour deep green. Length, 1.6 mm.

*Distribution*.—N.S.W.: Bourke Street, Varroville, Kendall, Holbrook; New Zealand.

#### ILYODROMUS OBTUSUS Sars.

Sars, 1894, p. 46, Plate vi, figs. 4a-d.

*Female*. Shell, seen laterally, reniform, with the greatest height almost attaining half the length so that this species is comparatively higher than the two preceding species; dorsal margin very straight, sloping at each end; ventral margin deeply sinuated at the middle; extremities obtusely rounded and of equal height. Seen dorsally, oval in outline, moderately compressed. Surface and relative size of the valves as in *I. stanleyanus*. Caudal rami strongly built, dilated at the tips, claws well developed. Colour dark green. Length, 1.4 mm.

*Distribution*.—This species has not before been recorded in Australia. Several specimens were obtained at Leura on the Blue Mountains. Sars' specimens were reared from dried mud collected at Dunedin, New Zealand.

#### ILYODROMUS VIRIDULUS (Brady).

Briefly described as *Cypris viridula* by Brady in 1886 (p. 88). Fully described and figured by Sars in 1896 (Plate ii, figs. 3, 4; Plate v, figs. 8-11) as *Herpetocypris viridulus*. Transferred to the genus *Ilyodromus* by Sars in 1896.

*Distribution*.—N.S.W.: Bourke Street, Sydney, Condong district, Parramatta; Queensland.

#### ILYODROMUS SUBSTRIATUS Sars.

Videns. Sels. Skrifter i. Math. Nat. Klasse., 1894, No. 5 (p. 45, plate vi, figs. 3a-c).

*Female*. Shell, seen laterally, of irregular reniform shape; dorsal margin slightly curved, angular above the eye; ventral margin distinctly sinuated; posterior margin rounded, very much higher than the anterior. Seen dorsally, moderately compressed, elongated oval in shape. Valves unequal, the left being considerably larger than the right and overlapping it at both ends and ventrally;



inner duplicatures broader anteriorly than posteriorly. Surface of the shell marked by delicate longitudinal lines, not nearly so conspicuous as in *I. stanleyanus*. Caudal rami well developed, claws short and strong. Colour light yellowish-green. Length, 1.5 mm.

*Distribution*.—N.S.W.: Sydney, Botany; New Zealand.

#### ILYODROMUS ELLIPTICUS Sars.

Sars, 1896 (Plate vii., figs. 4a-c).

*Female*. Shell, seen laterally, elliptical; dorsal margin very slightly arched; ventral almost straight; anterior and posterior margins rounded and of equal height. Seen dorsally, very much compressed, elongated oval in shape with the anterior end more pointed than the posterior. Valves almost equal, the left very little larger than the right. Surface faintly striated; ends hairy, the hairs being long and far apart on the posterior margin. Caudal rami with well developed claws. Colour yellow tinged with green. Length, 1.1 mm. on an average, specimens collected at Lane Cove attained a length of 1.5 mm.

*Distribution*.—N.S.W.: Bourke Street, Botany; Lane Cove.

#### Subfamily CANDONINAE.

Antennae composed of five segments in the female and usually six in the male. Natatory setae absent. Terminal segment of the second leg bearing three unlike setae, two of which are backwardly directed. The members of this family have lost the power of swimming and are found creeping in the mud or on water plants. Two genera are represented in New South Wales.

#### *Key to genera of Candoninae.*

- A. Furca normal. . . . . *Candona*.  
 AA. Furca without a dorsal seta. . . . . *Candonopsis*.

#### Genus CANDONA Baird, 1850.

Antennae of the female composed of five segments, of the male six. Second pair of legs five, sometimes six, segmented, with two backwardly directed unequal setae and one long forwardly directed seta. Furca normal. Males numerous.

Only one species of this large genus is known to occur in New South Wales.

#### CANDONA LUTEA King.

King, 1855, p. 67; Brady, 1886, p. 92, Plate x., figs. 7, 8; Pl. viii., figs. 10, 11.

*Female*. Shell seen laterally, subreniform, greatest height occurring behind the middle and equalling half the length; dorsal margin moderately arched, sloping more abruptly posteriorly than anteriorly; ventral distinctly sinuated in the middle; anterior end rounded, posterior much higher and obliquely rounded. Seen dorsally, compressed, elongated oval in outline, the width equalling one-third of the length, anterior end more pointed than the posterior. Valves equal. Surface of the shell smooth and polished. Colour dark green; dried shells, glistening white. Length, 1.3 mm.

King's description of this species is very brief and the only mention of the

appendages is the statement that the antennae lack natatory setae. Brady's description is based on dried shells and unfortunately these were the only specimens available in the present case.

*Distribution*.—N.S.W.: Sydney Cove, Condong district, Tweed River.

#### Genus CANDONOPSIS Vávra, 1891.

Antennae as in *Candona*. Mandible with a very long palp. Furca slender and without a dorsal seta. Ten species have been described; one occurs in New South Wales.

#### CANDONOPSIS TENUIS (Brady).

*Candona tenuis*, Brady, Proc. Zool. Soc., 1886, p. 92.—*Candonopsis tenuis*, Sars, 1896 (Pl. vii., figs. 6a-d).

*Female*. Shell, seen laterally, reniform, the greatest height equalling half the length and occurring behind the middle; dorsal margin fairly straight, ventral sinuated; anterior margin lower than the posterior. Seen dorsally, very compressed, anterior end more pointed than the posterior. Valves equal, inner duplicatures broad, ends bearing delicate hairs. Surface smooth and polished, minutely reticulated. Caudal rami narrow, dorsal seta absent, each terminal claw with a denticle situated at half its length. Colour white. Length, .90 mm.

*Male*. Dorsal margin arched, ventral sinus occurring in front of the middle, anterior end more produced than in the female. Length, 1.0 mm.

*Distribution*.—N.S.W.: Bourke Street, Maroubra, Tweed River; Sumatra.

#### Family CYTHERIDAE.

Surface of the shell usually rough and uneven. Antennules composed of 5-7 segments, not adapted for swimming. Antennae composed of 4-5 segments, the first of which bears a flagellum. Natatory setae absent. Three pairs of legs which are very alike but vary in size. Furca rudimentary, represented by two rounded lobes bearing one or more setae.

This family comprises few freshwater forms. None have hitherto been recorded from Australia.

#### Genus LIMNICYTHERE Brady, 1868.

Shell usually thin, tuberculate or spiny. Antennules five-segmented, antennae four-segmented. Branchial plate of the mandible strongly developed. Furca very rudimentary.

Ten species have been described; a new one is here added from New South Wales.

#### LIMNICYTHERE ASPERA, n.sp. (Plate xxix., figs. 4-8.)

*Female* (fig. 4). Seen laterally, somewhat rectangular in shape, higher anteriorly than posteriorly, the greatest height occurring in front of the middle about the region of the eye. Dorsal margin straight for the greater part of its length, sloping down towards the posterior end and anteriorly forming an arch over the eye; ventral margin sinuated in front of the middle; anterior margin almost straight, curving slightly to meet the dorsal and ventral margins; posterior margin curved. Valves almost equal, each marked by a distinct lateral furrow. Surface not marked by any definite sculpturing but decidedly rough. Antennule (fig. 6) five-segmented, the terminal segment bearing three setae of

equal length and a fourth longer seta. Antenna (fig. 7) composed of four segments, flagellum long, unsegmented. Caudal rami (fig. 8) reduced to two rounded prominences, each bearing a terminal spine and a very short lateral spine. Colour brown. Length, .41 mm.; height, .22 mm.

*Distribution.*—N.S.W.: Byron Bay.

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## EXPLANATION OF PLATES XXIV.-XXIX.

## Plate xxiv.

*Newnhamia fenestrata*.

Fig. 1.—♀. Lateral view (x 60); Fig. 2.—dorsal view (x 60); Fig. 3.—surface markings (x 225); Fig. 4.—shell margin (x 225); Fig. 5.—ventral plate (x 60); Fig. 6.—end segment, second leg (x 225); Fig. 7.—furca (x 358); Fig. 8.—end of antenna (x 225); Fig. 9.—second maxilla (x 550); Fig. 10.—second maxilla ♂. (x 550).

## Plate xxv.

*Cypridopsis australis*, ♀.

Fig. 1.—Lateral view (x 88); Fig. 2.—dorsal view (x 88); Fig. 3.—surface (x 200); Fig. 4.—antenna (x 408); Fig. 5.—first leg (x 550); Fig. 6.—second leg (x 550); Fig. 7.—furca (x 350).

## Plate xxvi.

*Cypris crinita*.

Fig. 1.—♀. Lateral view (x 25); Fig. 2.—♂. lateral view (x 25); Fig. 3.—♀. dorsal view (x 25); Fig. 4.—♀. antennule (x 62); Fig. 5.—♀. antenna (x 62); Fig. 6.—♀. first leg (x 70); Fig. 7.—♀. second leg (x 70); Fig. 8.—♀. furca (x 30).

## Plate xxvii.

*Cyprinotus tenuis*, ♀.

Fig. 1.—Lateral view (x 67); Fig. 2.—dorsal view (x 67); Fig. 3.—surface (x 270); Fig. 4.—antenna (x 166); Fig. 5.—antennule (x 166); Fig. 6.—first leg (x 166); Fig. 7.—second leg (x 166); Fig. 8.—furca (x 170).

## Plate xxviii.

Figs. 1-5. *Cypretta hirsuta*, ♀.

Fig. 1.—Lateral view (x 105); Fig. 2.—dorsal view (x 105); Fig. 3.—valve margin (x 210); Fig. 4.—end segment, second leg (x 525); Fig. 5.—furca (x 525).

Figs. 6-7. *Herpetocypris laevissima*, ♀.

Fig. 6.—Lateral view (x 72); Fig. 7.—furca (x 100).

## Plate xxix.

Figs. 1-3. *Cyclocypris tenuissima*.

Fig. 1.—♂. Lateral view (x 94); Fig. 2.—♀. lateral view (x 94); Fig. 3.—♀. furca (x 468).

Figs. 4-8. *Limnocythere aspera*, ♀.

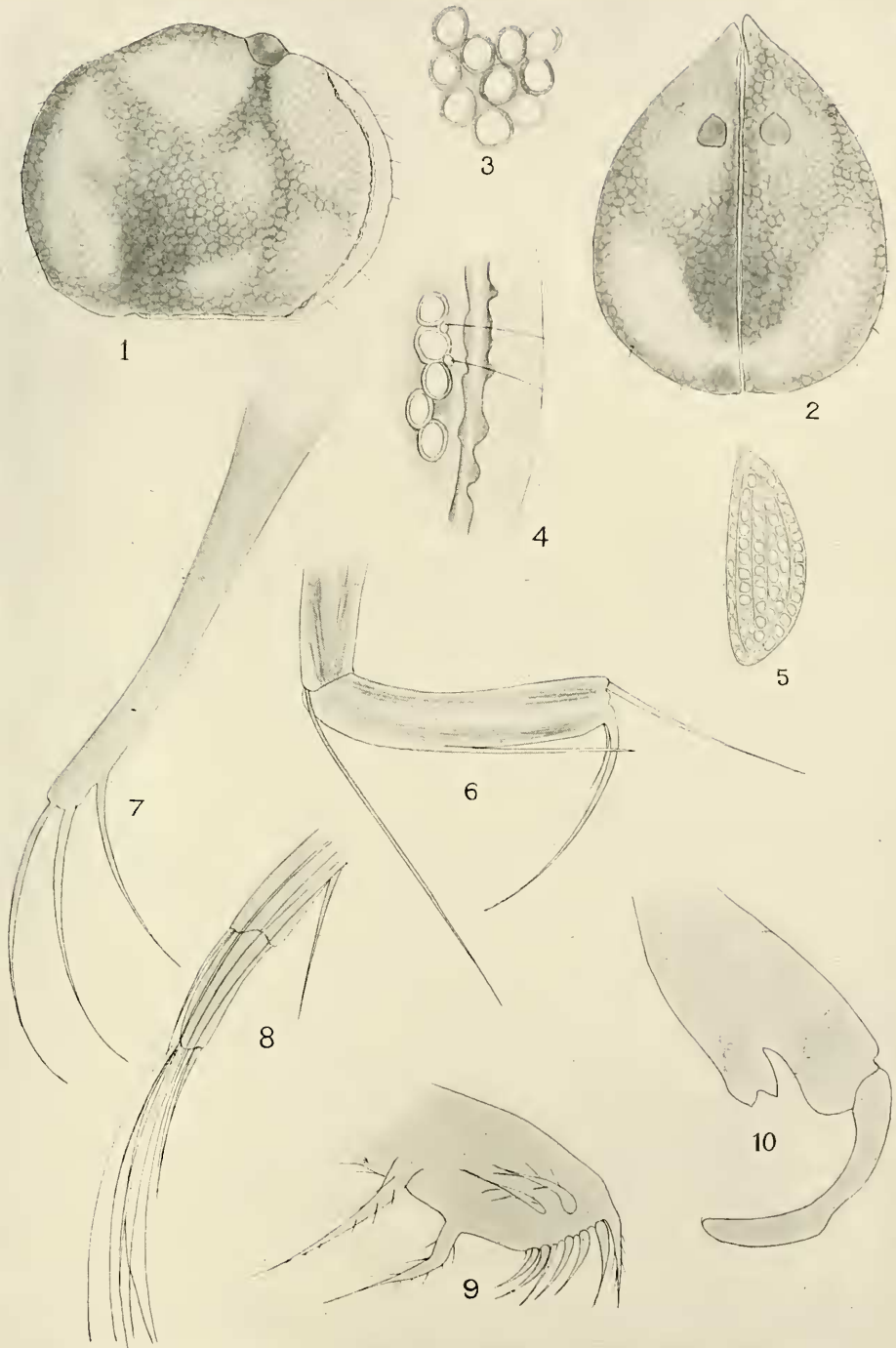
Fig. 4.—Lateral view (x 94); Fig. 5.—first leg (x 450); Fig. 6.—antennule (x 450); Fig. 7.—antenna (x 450); Fig. 8.—furca (x 450).



Plate xxiv.

*Newnhamia fenestrata.*

Fig. 1.—♀. Lateral view (x 60); Fig. 2.—dorsal view (x 60); Fig. 3.—surface markings (x 225); Fig. 4.—shell margin (x 225); Fig. 5.—ventral plate (x 60); Fig. 6.—end segment, second leg (x 225); Fig. 7.—furca (x 358); Fig. 8.—end of antenna (x 225); Fig. 9.—second maxilla (x 550); Fig. 10.—second maxilla ♂. (x 550).

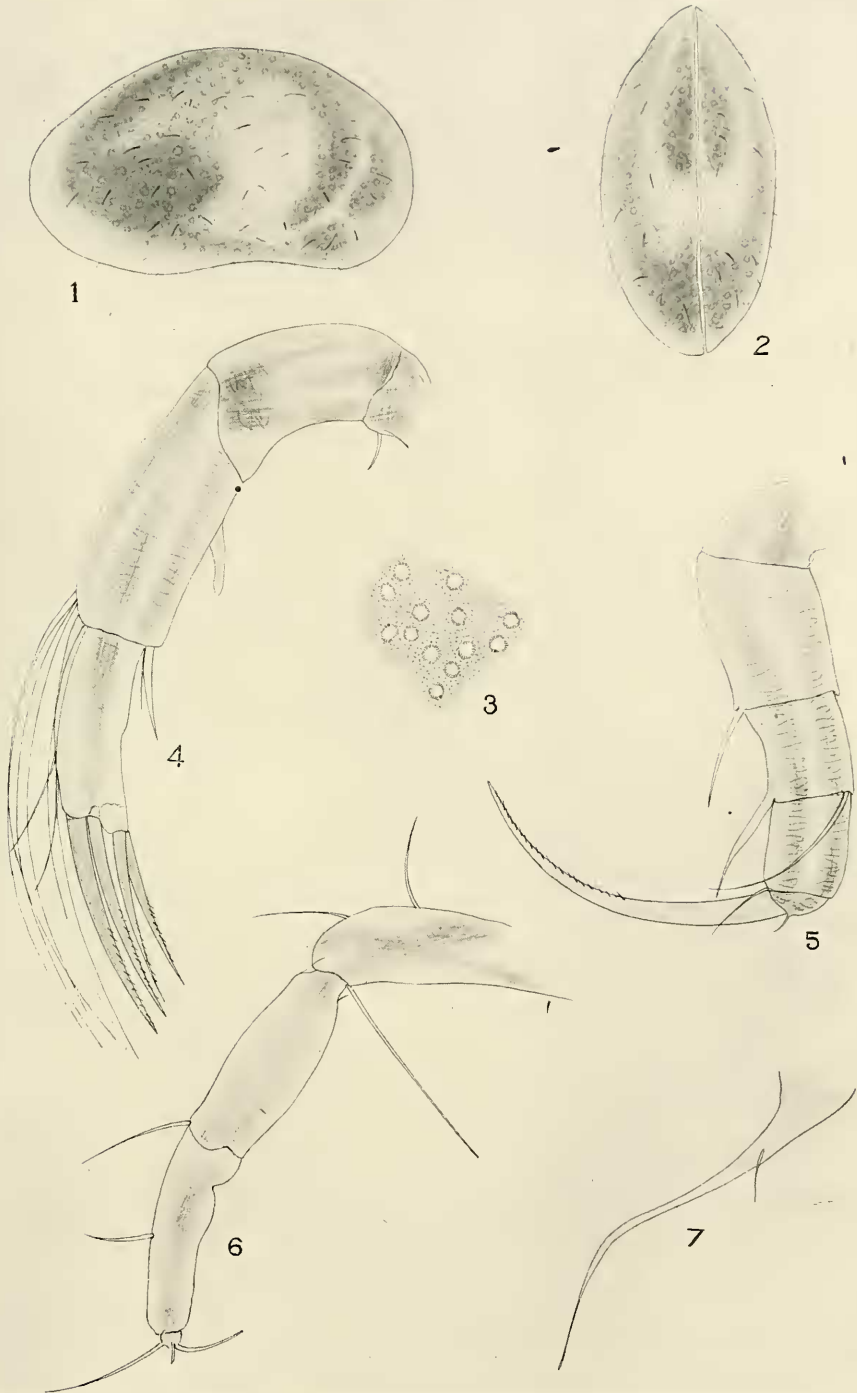


*Newnhamia fenestrata.*

Plate xxv.

*Cypridopsis australis*, ♀.

Fig. 1.—Lateral view (x 88); Fig. 2.—dorsal view (x 88); Fig. 3.—surface (x 200); Fig. 4.—antenna (x 408); Fig. 5.—first leg (x 550); Fig. 6.—second leg (x 550); Fig. 7.—furca (x 350).



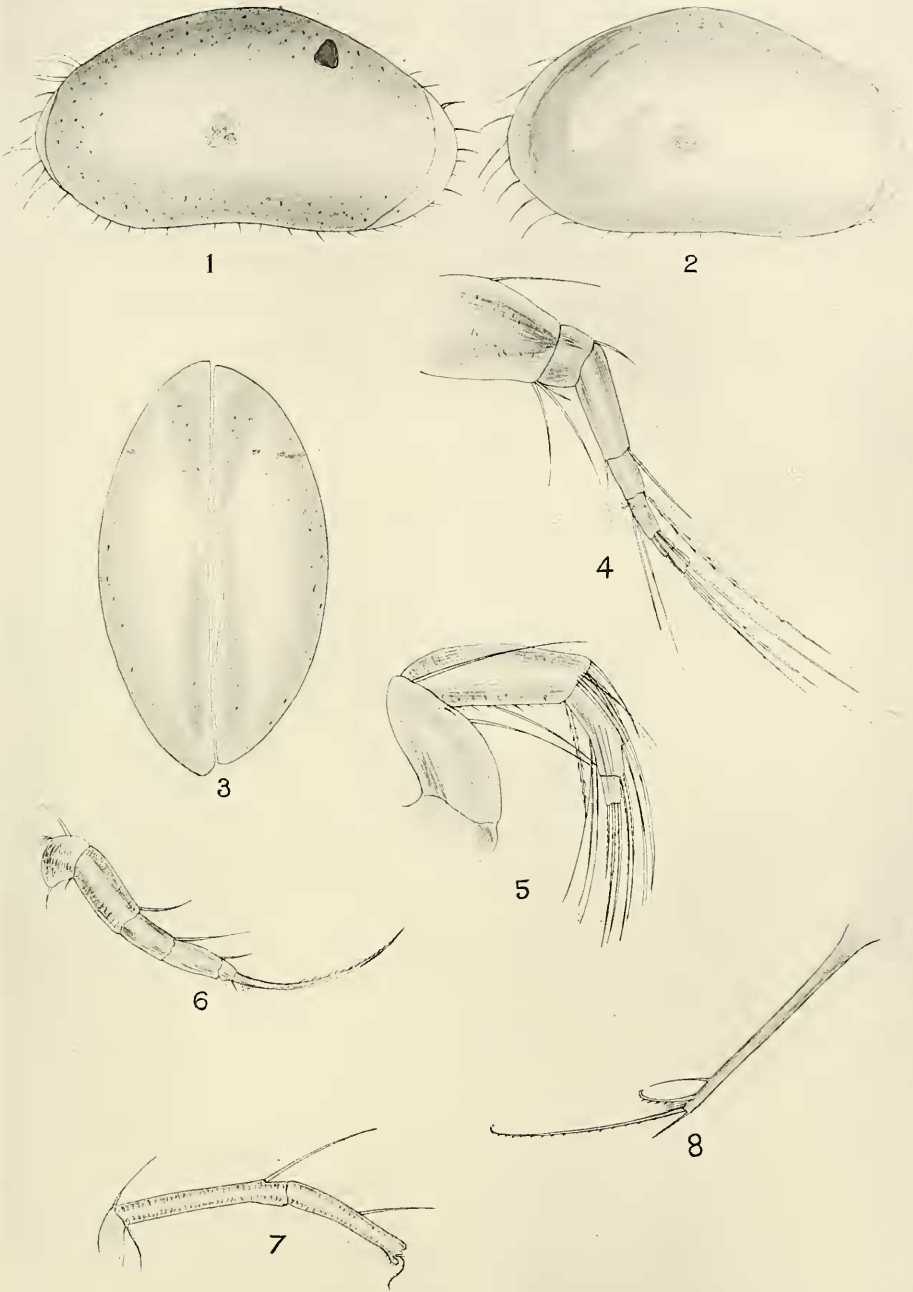
*Cypridopsis australis*, ♀.



Plate xxvi.

*Cypris crinita*.

Fig. 1.—♀. Lateral view (x 25); Fig. 2.—♂. lateral view (x 25); Fig. 3.—♀. dorsal view (x 25); Fig. 4.—♀. antennule (x 62); Fig. 5.—♀. antenna (x 62); Fig. 6.—♀. first leg (x 70); Fig. 7.—♀. second leg (x 70); Fig. 8.—♀. furca (x 50).

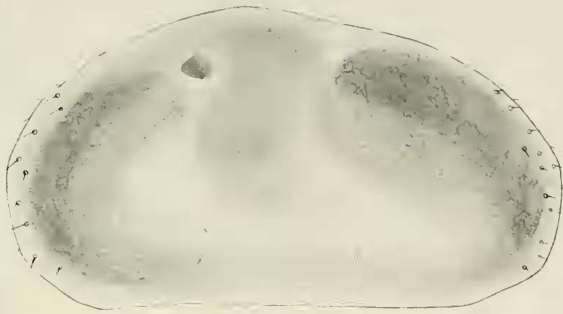


*Cypris crinita.*

Plate xxvii.

*Cyprinotus tenuis*, ♀.

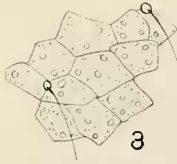
Fig. 1.—Lateral view (x 67); Fig. 2.—dorsal view (x 67); Fig. 3.—surface (x 270); Fig. 4.—antenna (x 166); Fig. 5.—antennule (x 166); Fig. 6.—first leg (x 166); Fig. 7.—second leg (x 166); Fig. 8.—furca (x 170).



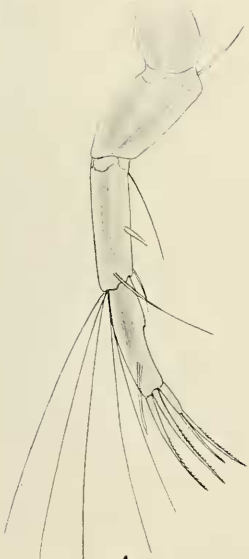
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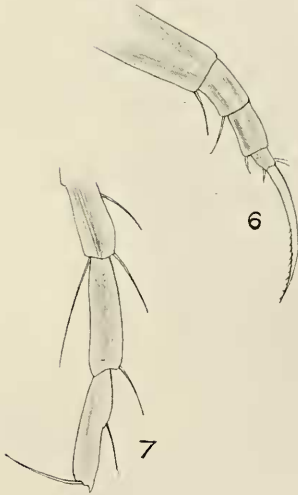
2



3



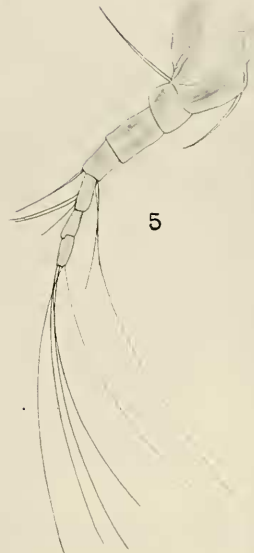
4



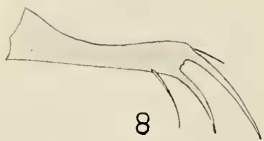
6



7



5



8

*Cyprinus tenuis*, ♀.



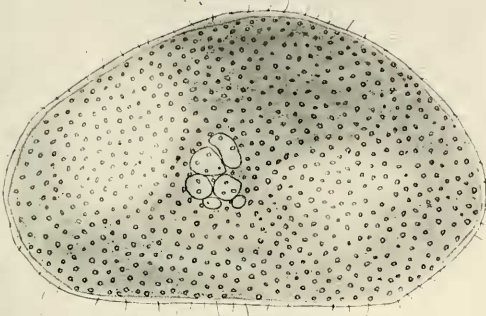
Plate xxviii.

Figs. 1-5. *Cypretta hirsuta*, ♀.

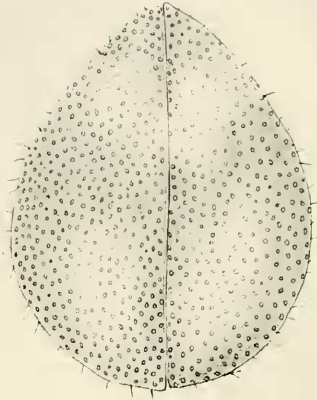
Fig. 1.—Lateral view (x 105); Fig. 2.—dorsal view (x 105); Fig. 3.—valve margin (x 210); Fig. 4.—end segment, second leg (x 525); Fig. 5.—furca (x 525).

Figs. 6-7. *Herpetocypris laevissima*, ♀.

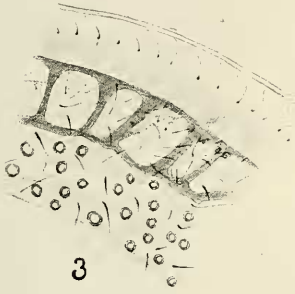
Fig. 6.—Lateral view (x 72); Fig. 7.—furca (x 100).



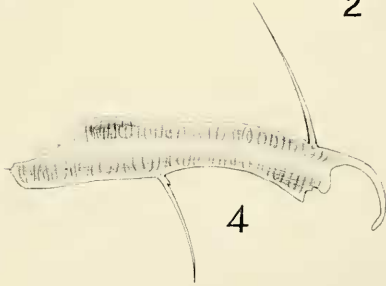
1



2



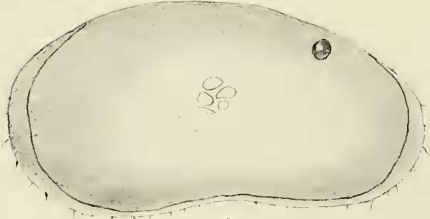
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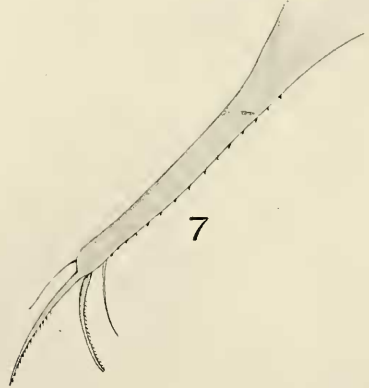
4



5



6



7

1-5. *Cypretta hirsuta*, ♀. 6-7. *Herpetocypris laevis*, ♀.

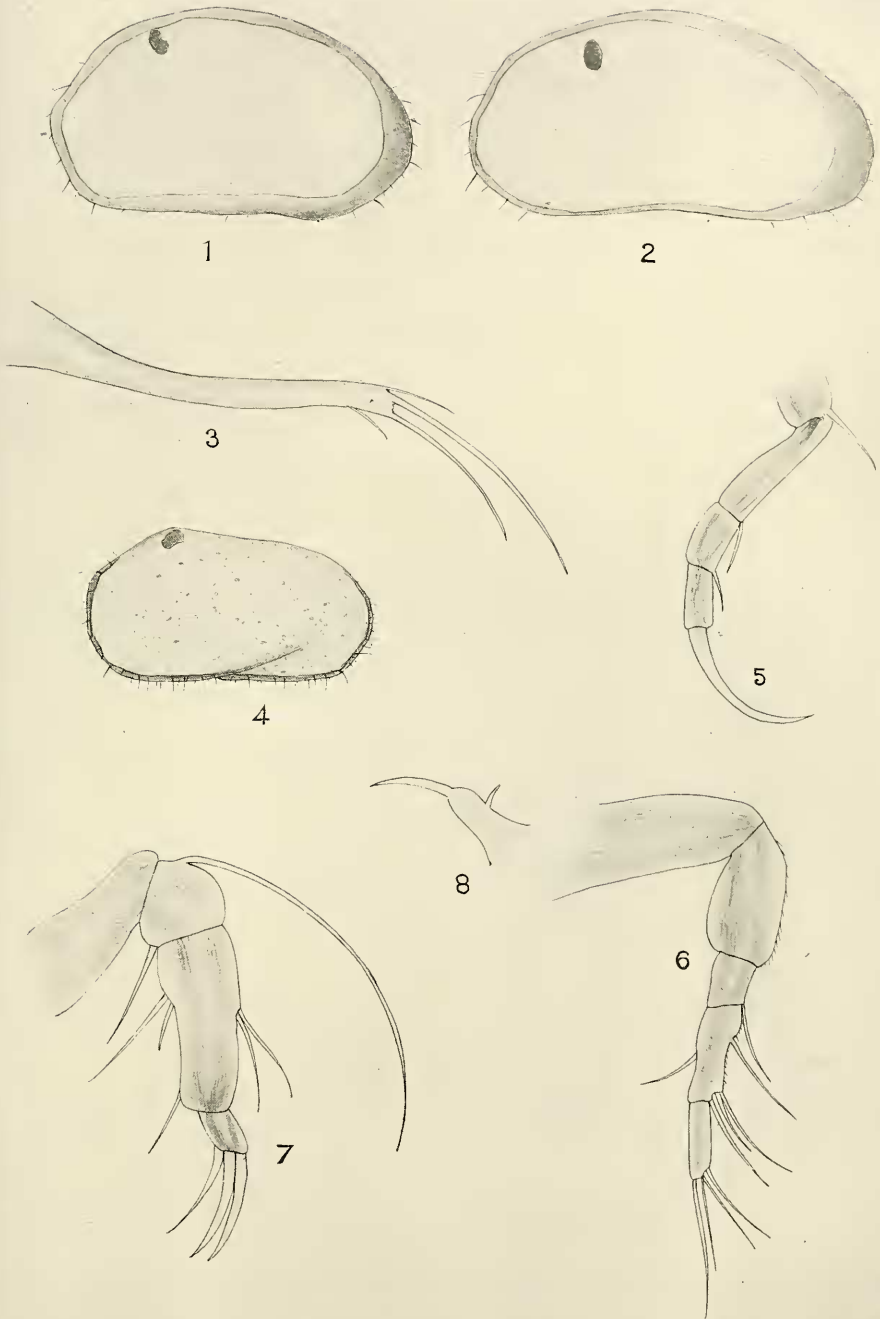
Plate xxix.

Figs. 1-3. *Cycloocypris tenuissima*.

Fig. 1.—♂. Lateral view (x 94); Fig. 2.—♀. lateral view (x 94); Fig. 3.—♀. furca (x 468).

Figs. 4-8. *Limnocythere aspera*, ♀.

Fig. 4.—Lateral view (x 94); Fig. 5.—first leg (x 450); Fig. 6.—antennule (x 450); Fig. 7.—antenna (x 450); Fig. 8.—furca (x 450).



1-3. *Cyclocypris tenuissima*.

4-8. *Limnocythere aspera*, ♀.